

ABSTRACT

HOLDING TONGS FOR A FLEXIBLE SLEEVE AND PROCESS FOR
CLOSURE OF THE LATTER BY SEALING

Heating tongs (6) are used to cut a sleeve (4) fixed around an opening (1) of a chamber (2) after the objects to be taken out of the chamber have been introduced. Another pair of tongs (9) is placed on the side of the opening (1) to tighten the sleeve (4) and to keep it flat to avoid pleats, to allow ventilation during the preparation and to avoid tension in the sleeve; the latter would compromise the sealing taking place.

10

Figure 1.

2/PRTS

1

531 Rec CT/PTC 14 JAN 2002

10/031078

HOLDING TONGS FOR A FLEXIBLE SLEEVE AND PROCESS FOR
CLOSURE OF THE LATTER BY SEALING

5 The present invention relates to closing supple
sleeves by sealing in order to enclose and to isolate
certain objects, together with holding tongs for the
sleeve, which facilitate the process. The domain of the
invention is more precisely that of leak-proof chambers
under controlled pressure lower than atmospheric
pressure such as glove boxes, from where it is
sometimes necessary to extract parcels, taken out
through openings around which flexible vinyl sleeves
10 have been set in place. Afterwards, heating tongs are
brought close to a position near the sleeve between the
objects and the link with the opening to the chamber,
in order to carry out three seals in this place before
selecting one. The objects can then be taken away
15 without polluting externally, and in the same way the
portion of the sleeve remaining fixed to the chamber
comprises no opening which could compromise its seal.

Despite its simplicity, this process is fastidious
in practice. The low pressure chamber tends, in
20 general, to cause pleats in the sleeves, to suck them
in and to deform them continually.

If the sleeve is sealed when a pleat has been
formed, the work risks being incorrect and the seal
incomplete along its length. If there is tension on the
25 sleeve during sealing, there is a possible risk of
confinement rupture at this point, which is
unacceptable. Therefore one has to take care while
working, and a second operator is used in practice just

link 3. The chamber 2 is under low pressure, as is normal for such techniques where it generally contains polluting or dangerous materials, in order to avoid any accidental leak from the chamber atmosphere 2 towards the exterior. The sleeve 4 is intended to contain certain parcels or objects 5, which need to be extracted from the chamber 2. When they are introduced into it, heating tongs 6 are brought in, provided with two clamping jaws 7, to the regions 8 in order to seal the sleeve 4. These regions 8 are clamped between the jaws 7, and then an electric current is passed through a resistance adjacent to one of the jaws 7 in order to heat it, melt the vinyl, and seal the sleeve 4 by sealing the regions 8, after which the sleeve 4 can be cut in the middle of the regions 8 in order to detach the objects 5 without exposing them to the open air and without compromising the seal of the chamber 2. Nonetheless, beforehand, another pair of tongs 9 has been set on the sleeve 4 between the regions 8 and the link 3; these clamping or holding tongs 9 comprise, as seen more clearly in figure 2, a pair of branches 10 and 11 articulated together by a pivot 12 and which comprise the facing clamping edges, 13 and 14 respectively, which remain apart even when the clamp 9 is closed to its maximum: their distance is almost equal to the thickness of the sleeve 4, so as to be able to grip it evenly and firmly but without using excessive effort which could lead to the formation of pleats. A stop between the branches 10 and 11 is provided by a contact between the end portions 15 and 16. Branches 10 and 11 are terminated by handles 17